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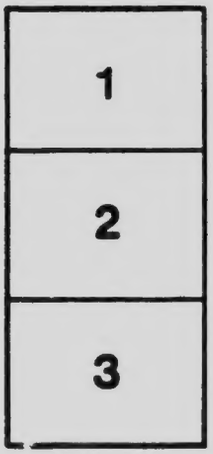

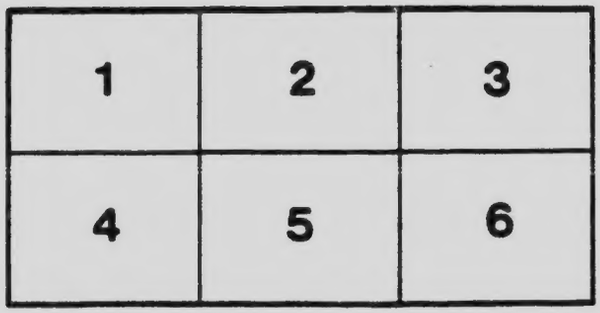

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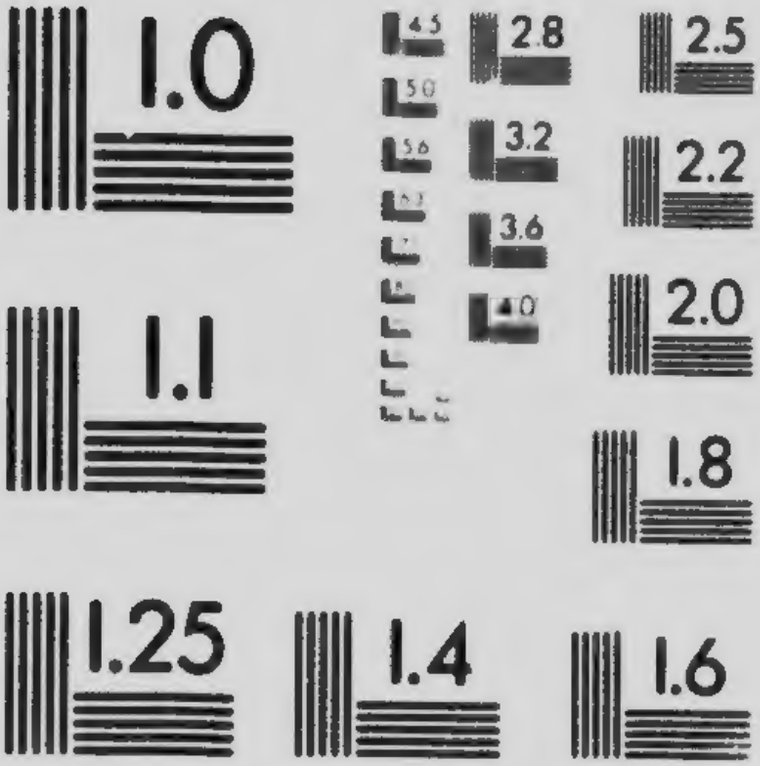

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DEPARTMENT OF AGRICULTURE.

BRANCH OF THE COMMISSIONER OF AGRICULTURE AND DAIRYING - - - - - - - - , DAIRY DIVISION.

OTTAWA, CANADA.

JAS. W. ROBERTSON,
Commissioner of Agriculture and Dairying.

J. A. RUDDICK,
Chief of Dairy Division.

NOTES FOR CHEESEMAKERS.

BULLETIN No. 9.

New Series.

PUBLISHED BY DIRECTION OF THE HON. SYDNEY A. FISHER, MINISTER OF AGRICULTURE

MARCH, 1903.

OTTAWA, March 1st, 1903.

To the Honourable the Minister of Agriculture.

SIR,—I beg to transmit herewith a Bulletin, Notes for Cheesemakers, by J. A. Ruddick, Chief of the Dairy Division, and to recommend that it be printed for distribution.

I have the honour to be,
Sir,
Your obedient servant,

JAS. W. ROBERTSON,
Commissioner of Agriculture and Dairying.

NOTES FOR CHEESEMAKERS.

BY

J. A. RUDDICK.

1. You cannot make strictly fine cheese from milk which is overripe or tainted.

2. If you are a progressive cheesemaker, you will study the causes of tainted milk and assist the patrons to remove them.

3. Milk may become tainted from—

(*a*) Feed unsuitable for milking cows;
(*b*) Injudicious feeding;
(*c*) An impure water supply;
(*d*) Want of salt by the cow;
(*e*) Absorption of odours;
(*f*) The germs that get into the milk during and after milking.

4. Encourage the patrons to aerate the milk, but advise them that aeration must be carried out in a place where the air is pure and free from dust or bad odours.

5. Milk will be injured rather than improved if aerated in a stable, barnyard or even alongside a milking yard, from which dust arises.

6. Milk is not prevented from turning sour by aeration, except in so far as the process lowers the temperature.

7. Generally speaking, a patron who delivers tainted or gassy milk to a cheese factory causes a more serious loss to his fellow patrons than one who skims or waters his milk. This fact should be impressed on the minds of all patrons.

8. In warm weather the milk should be cooled to a temperature of 70 degrees Fahr. or lower.

9. Attend personally to the taking in of the milk as far as possible.

10. Keep your weighing stand and everything thereon, including your clothes and person, thoroughly clean. You have no right to require the patrons to furnish clean milk unless you set a good example.

11. Make fermentation tests of each patron's milk as frequently as possible. By this means you will often locate taints which are not discernable when the milk is being received.

12. The rennet should be used in sufficient quantity to coagulate the milk, fit for cutting, in not more than 30 minutes, at a temperature of 86 degrees Fahr.

13. The milk should have such a degree of ripeness, or acidity, when the rennet is added, that the whey will be removed in two and a half to three hours from the time the rennet is added.

14. When cutting the curd always aim to make the cubes of uniform size, and follow any course that will secure such a result.

15. A curd that is allowed to get too firm cannot be so well cut as one that is "just right."

16. If the cubes of curd are uneven in size, there will be different kinds of curd in the vat when the whey is removed, because the smaller particles harden first and do not show acid as quickly as the larger and softer ones do.

17. Stir very gently at first after cutting. Many cheesemakers cause more waste at this stage than their wages amount to.

18. The whey should not be removed until the curd has a somewhat firm, elastic character, and is what is generally termed properly "cooked."

19. The curd should be firm, elastic and well "cooked" before there is any appreciable development of acidity.

20. Failure to have the curd firm before the whey is removed results in tender bodied, "acid cut" cheese.

21. If difficulty is experienced in getting the curd firm at the proper stage, run off as much as possible of the whey as soon as heating is finished, without tipping the vat, and stir curd vigorously.

22. If difficulty is still experienced in getting the curd firm, the "cooking" temperature should be raised.

23. It is generally advisable to raise the "cooking" temperature several degrees as the season advances, and the milk becomes richer in fat. It should never be raised higher than is necessary at any time of the year.

24. When the whey is removed, the curd should be stirred on racks placed on the bottom of the vat at this stage, or in special "sinks" having rack bottoms.

25. The cloths used over these racks *must be kept clean.* Bad flavours in cheese are often caused by filthy rack cloths.

26. There should not be more than ¼ of an inch of acid by the hot iron test, nor more than 0·2 per cent by acidimeter test when the whey is removed.

27. It requires good judgment to determine the amount of stirring the curd should receive before being allowed to "pack." Cheesemakers should study this point carefully, because it has an important effect on the texture and body of the finished cheese.

28. The curd should be protected with a cover while maturing.

29. If a cloth is used it should not rest on the curd.

30. If too much moisture has been allowed to remain in the curd, mill it early. In most cases mill it one hour before salting.

31. The curd should be cut or broken into convenient sized pieces and turned once in twenty minutes while maturing.

32. If the curd shows signs of greasiness, the pieces should not be piled one on top of the other.

33. A "greasy" curd may with advantage be salted earlier and allowed to mature afterwards.

34. The application of the salt retards but does not stop the changes that are taking place in the curd.

35. When filling the hoops, pack the curd well in the centre, so that when pressure is applied the curd will close up in the centre first and the air and whey will have a chance to escape.

36. Apply pressure gradually. "A little and often" is a good rule for the first hour.

37. Many cheese are open and loose because not well pressed.

38. A sweet, immature curd will not make a close cheese under any amount of pressure, but no Cheddar cheese is ever solid and close unless heavy pressure has been applied.

39. Salt gives a flavour to cheese and assists in expelling moisture.

40. Salt varies greatly in weight owing to its quality of absorbing moisture, and giving it off again. It is therefore easier to secure uniform results if the salt is measured instead of weighed.

41. Cheese should be kept in the presses until the next batch is ready.

42. If seamless bandage is used, a half size smaller than the hoop (15 inch for a 15½ inch hoop, &c.), will give you a neater looking cheese.

43. The best temperature for curing cheese is certainly not over 60 degrees.

44. There is a marked difference in the flavour and texture of cheese cured between 56 and 58 degrees Fahr., as compared with others of the same batch cured even at 70

degrees. As the temperature is raised the difference increases, especially in the matter of flavour.

45. There is as much as from one to two per cent less shrinkage if the cheese is cured at the lower temperature.

46. A cheese cured at 58 degrees begins to "break down" about a week later than if cured at ordinary curing room temperature, say 70 to 80 degrees.

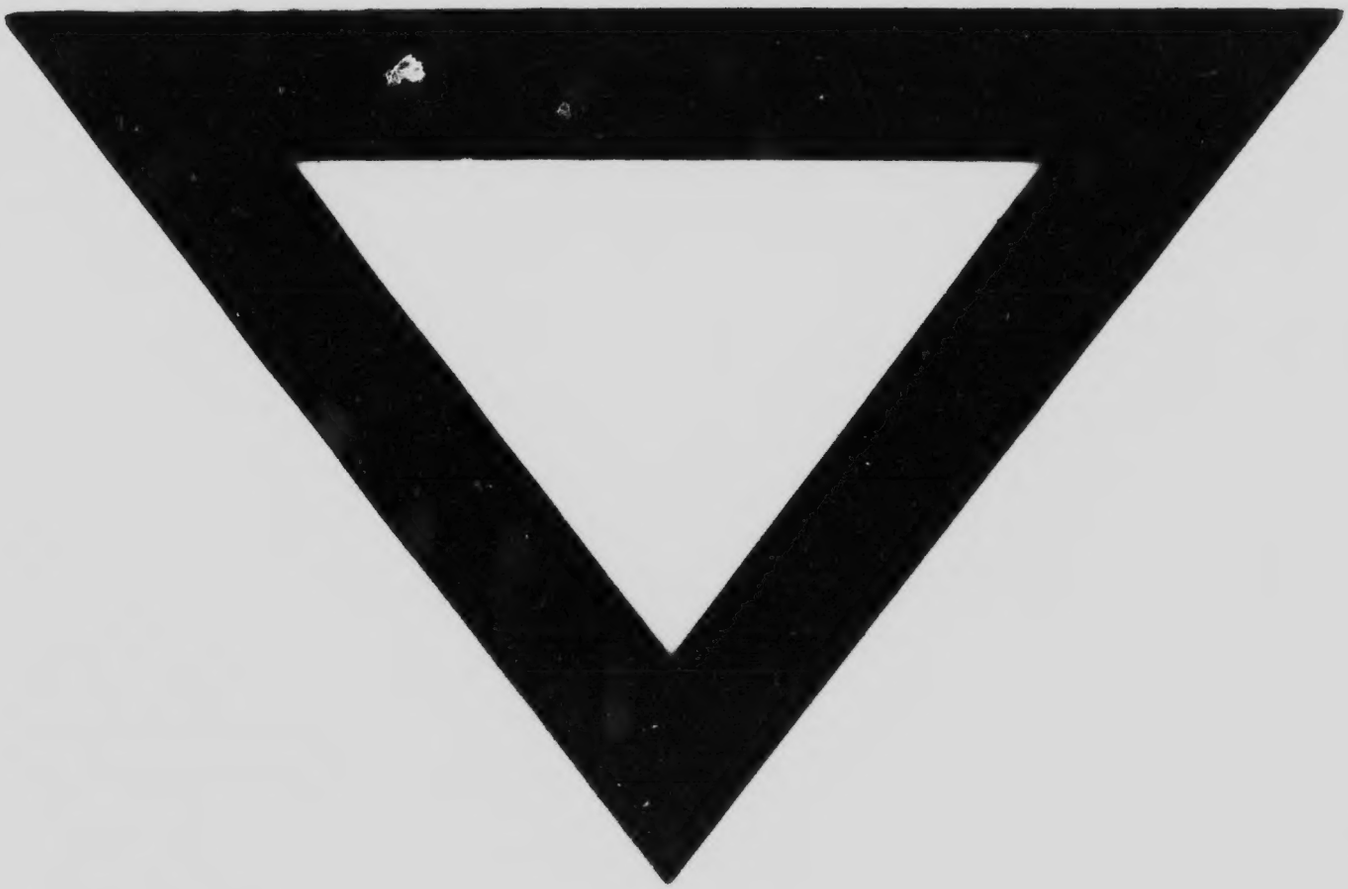
47. As a cheesemaker you should use all your influence towards securing better sanitary conditions around factories in general.

48. Some attempt should be made to keep flies out of the factory. It is disgusting to see the swarms of them in some places.

49. Flies are attracted to all kinds of filth with its putrefactive germs. Particles of filth containing germs cling to their legs and bodies, and when they get into milk or cream they are a sure course of infection.

50. A cement concrete floor is the only kind that will ensure perfect drainage for the making room. It will help to keep the curing room cool in hot weather, and warm in cold weather.

51. Dirty whey tanks are a source of contamination at many cheese factories where the whey is returned in the milk cans.

52. Make it your business to see that the whey tank at your factory is kept clean; otherwise it is useless to expect your cheese to have a fine flavour.

53. Send to the Commissioner of Agriculture, Ottawa, for a sufficient number of copies of Bulletin No. 2, "Care of Milk for Cheese Factories," to furnish one to each patron. There is no charge for the bulletins.